NORTHEAST ELECTRONICS
Division of nt northern telecom
Airport Rd., Concord, N.H. 03301•(603) 224-6511•TELEX 94-3453

INSTRUCTION MANUAL

MODEL TTS 26BXPS

POWER SUPPLY

PRINTED IN U.S.A.

No. A0026-57-600 ISSUE 2 DATE JUNE 1977

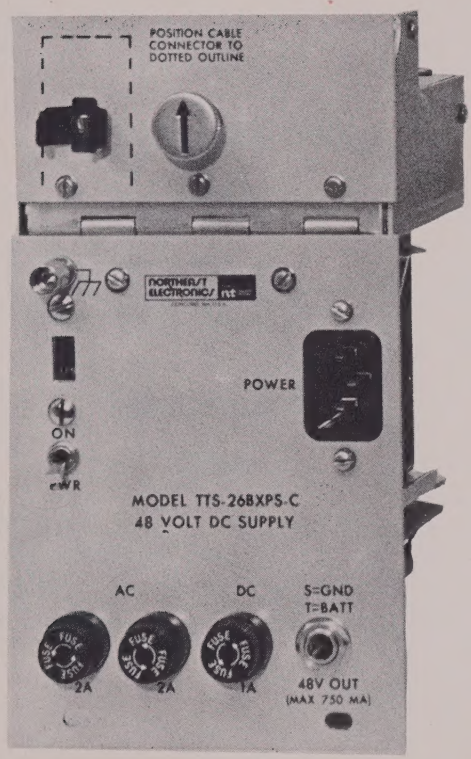

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Table 1—3. TTS 26BXPS Parts List.

REFERENCE DESIGNATOR	DESCRIPTION VALUE	POWER	TOL	VOLTS	MFGR.	MFGR. PART NO.	N.E.C. PART NO.
F1	FUSE 3AG				LITTELFUSE	3AG	863100600
F2	FUSE 3AG				LITTELFUSE	3AG	863100400
F3	FUSE 3AG				LITTELFUSE	3AG	863100600
J1	JACK,TEL,SWCRFT SCHEM 3				SWCRFT	L12A	650100100
J2	BINDING POST METAL GND				H H SMITH	137SP	652500100
P1	3-PIN	6A		250V	BELDEN	17252	652201700
PC1	ASSY 48V DC REG. 95588						A002657010
Q3	TO-3	115W	TC	NPN 60V	RCA	2N3055	550030550
S1	DPDT	5A		28V	C+K COMP	7201P3YZE	620400600
S2	DPDT LOCKING				SWCRFT	46206LF	645500200
T1	47HZ	1A			TECO	5731	420500400
XF1-3	FUSEHOLDER,3AG PANEL				BUSSMAN	HKP	863000100

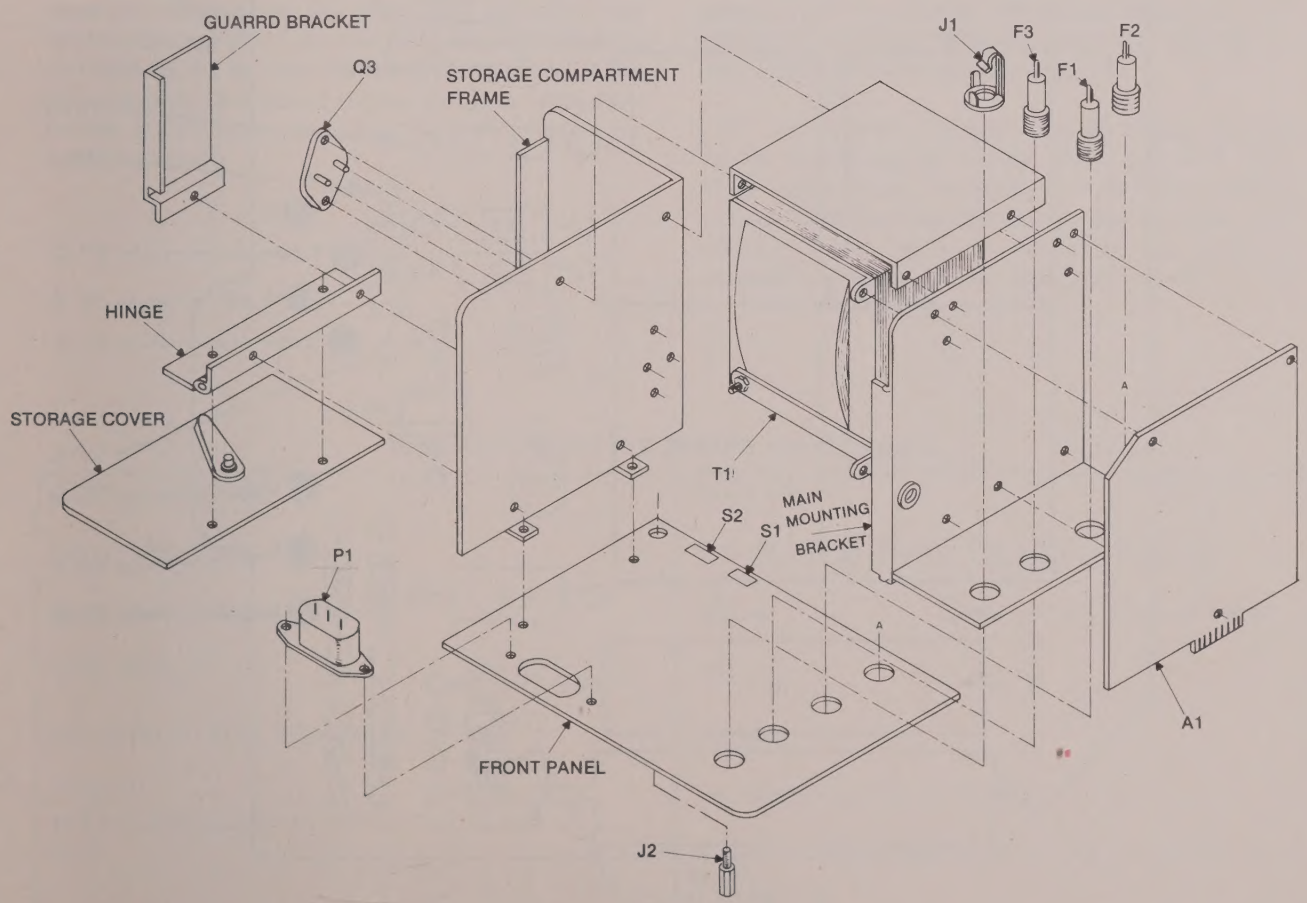


Figure 1—1. Model TTS 26BXPS, Component Location.

Table 1—4. Printed Circuit Board Parts List.

REFERENCE DESIGNATOR	DESCRIPTION VALUE	POWER	TOL	VOLTS	MFGR.	MFGR. PART NO.	N.E.C. PART NO.
C1-2	300UF			100V	TSI	PA300QU100	301403070
C3	100UF			50V	SPRAGUE	TE-1309	300201072
CR1	A31A	1W	5%	24V	DICKSON	1N3029B	562030292
CR2-5	D035 4NS 10MA	SI	50UA		FAIRCHILD	1N4148	560041480
CR6-9	D041	1A	SI	200V	EDAL	1N4003	560040030
R7	1K	.25W			MALLORY	MTC13L1	231201020
Q1-2	TO105 350MW TC PNP			60V	FAIRCHILD	2N4354	552043540
R1-2	1.2K	1/2W	10%		AB	TYPE EB	200201226
R3	1-	3W	5%		W LEONARD	TYPE 3X	210300105
R4	2.4K	1/2W	5%		AB	TYPE EB	200202425
R5	110-	1/2W	5%		AB	TYPE EB	200201115
R6	12#	12W	5%		OHMITE	1711	210701205

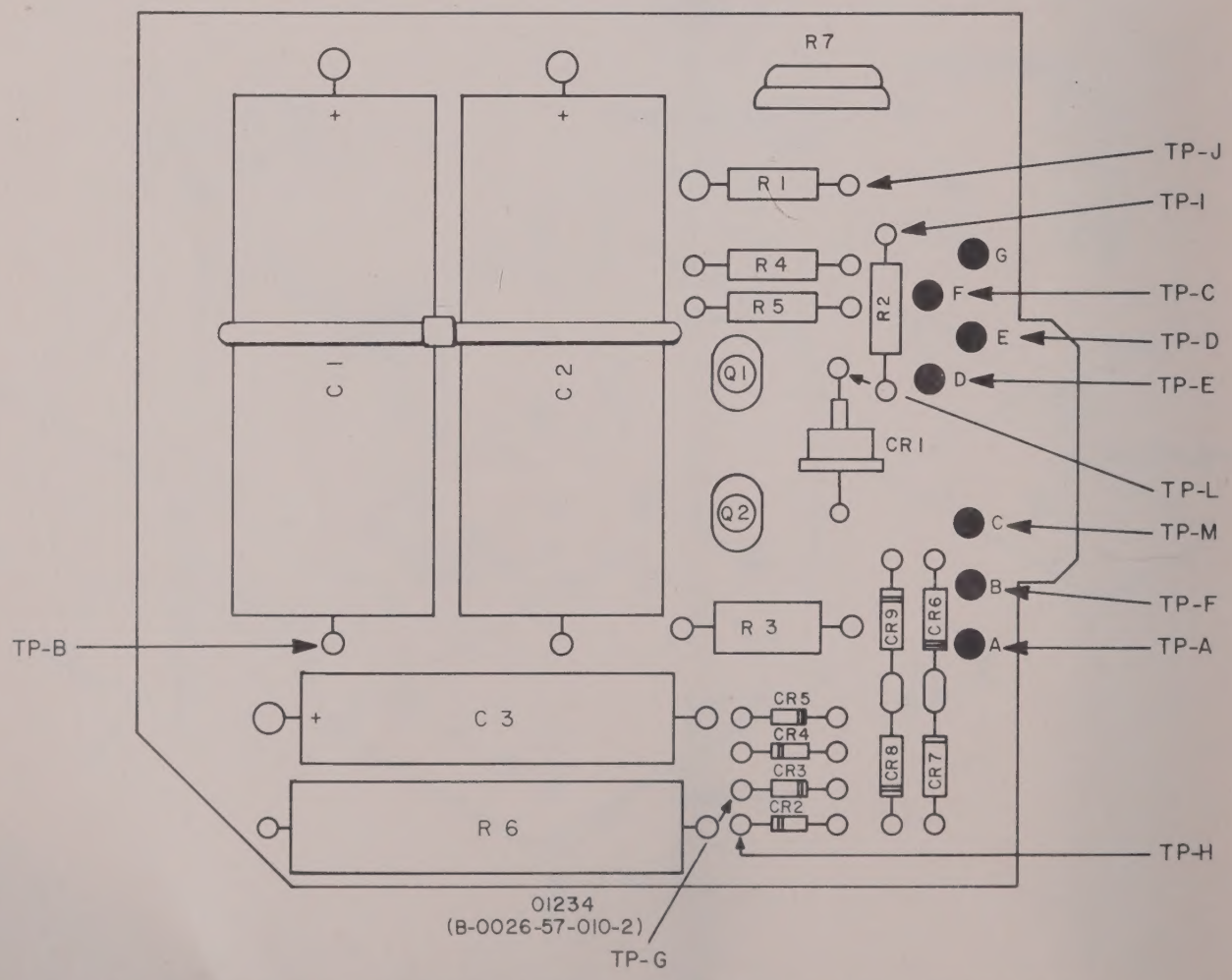


Figure 1—2. Model TTS 26BXPS, Printed Circuit Board, Component Location

1.1 INTRODUCTION.

1.2 The Model TTS 26BXPS is an accessory which accepts 115 or 230 Vac, 47 to 60 Hz, input power and supplies regulated 48 Vdc power needs to operate various Northeast Electronics test sets.

1.3 The power supply is designed in modular form and may be used as one of three accessories which mount in a test set cover (lid). Panels are available for mounting on the right side or in the center of a test set cover. A storage compartment for an 8-ft power cord is included with the power supply.

1.4 SPECIFICATIONS.

1.5 Table 1—1 lists the specifications of power supply Model TTS 26BXPS.

1.6 OPERATION.

1.7 Operation of the power supply is obvious, therefore, no specific operating procedures are included in this manual. However, certain precautions should be observed. Always set the 115V/230V switch at the appropriate position. Connections to the supply output terminals should be made **before** applying power to the unit. Likewise, the power supply should be turned off before disconnecting the equipment attached to its output terminals.

1.8 CIRCUIT DESCRIPTION.

1.9 See Figure 1—3, the power supply schematic diagram. Fuses F1 and F3 provide input current protection. The 115V/230V switch places the primary windings of transformer T1 in series for 115 Vac operation and in parallel for 230 Vac operation. The ac input voltage across the transformer primary is stepped down to about 60 volts ac at the secondary. Full-wave bridge rectifier CR6-CR9, in conjunction with filter capacitors C1 and C2, converts this ac voltage to a raw dc voltage of approximately 80 volts dc. The raw dc voltage drives the dc regulator.

1.10 The dc regulator is a conventional series-pass voltage regulating circuit. Transistors Q2 and Q3 are the series-pass element while transistor Q1 functions as the error amplifier which controls the conduction of the series-pass element. Zener diode CR1 supplies —25 volts reference to the error amplifier. A sample of the output voltage is provided by resistors R1 and R2 in conjunction with potentiometer R7. The potentiometer allows the output voltage to be set between —40 and —55 volts dc. The error amplifier draws its operating voltage from the raw dc voltage via resistor R4. Capacitor C3 filters the output voltage wile fuse F2 protects against excessive output current.

1.11 Diode chain CR2-CR5 provides overcurrent protection by limiting the output current to a safe value. Under normal load, the voltage across current sensing resistor R3 is insufficient to forward bias the diode chain and the diode chain has no effect on the regulator's operation. However, under overcurrent conditions, the

Table 1—1. Model TTS 26BXPS Specifications.

OUTPUT VOLTAGE:	48 ± 4 Vdc
INPUT VOLTAGE:	110-120 Vac,47-60 Hz or 220-240 Vac, 47-60 Hz
MAX LOAD CURRENT:	750mA
MAX RIPPLE:	100mV
NO LOAD TO FULL LOAD REGULATION:	1.5 Vdc
FUSES:	2A for ac input; 1A for dc output
SIZE:	3 7/8-in. w x 7 13/16-in. h x 5-in. d (9.8 cm x 19.8 cm x 12.7 cm)
WEIGHT:	4 pounds 10 ounces (2.1 kg)

diode chain begins to conduct when the voltage across resistor R3 exceeds three diode drops. The conducting diode chain clamps the output of error amplifier Q1 four diode drops below the output voltage. This prevents series-pass element Q2/Q3 from supplying additional output current. The output current remains limited until the cause of the overcurrent condition is removed.

1.12 MAINTENANCE.

1.13 For aid in troubleshooting the power supply refer to Table 1—2 which gives nominal operating voltages at test points in the power supply under no load and full load conditions. The locations of the test points referred to in Table 1—2 are shown in Figures 1—2 and 1—3.

1.14 To access the test points, the power supply must be removed from the cover of the pulse test set. Use caution when handling the exposed power supply.

Table 1—2. TTS 26BXPS Nominal Operating Voltages.

TEST POINT	NO LOAD	FULL LOAD
A/M	60.5 Vac	56.4 Vac
B	82.2 Vdc	69.8 Vdc
C	81.8 Vdc	60.3 Vdc
D	49.3 Vdc	49.4 Vdc
E	49.3 Vdc	48.0 Vdc
F	81.1 Vdc	58.3 Vdc
G	49.6 Vdc	48.9 Vdc
H	49.9 Vdc	49.6 Vdc
I	32.3 Vdc	31.6 Vdc
J	16.9 Vdc	16.6 Vdc
K	25.6 Vdc	25.1 Vdc
L	25.0 Vdc	24.8 Vdc

All dc voltages measured with respect to J2 (ground).

Input voltage: 115 Vac
Full load output current: 750 mA
Voltages measured with Weston meter Model 1242

1.15 ADJUSTMENT.

1.16 To adjust the power supply output voltage, perform the following steps.

a. Remove the power supply from the test set cover.

b. Make sure the power switch is off.

c. Connect voltmeter (Weston Model 1242 or equivalent) to test point E and J (ground). See Figure 1—2.

d. Connect power supply to a 115 Vac, 47-60 Hz source (or 230 Vac, 47-60 Hz source) as required. Set 115V/230V at the appropriate position.

e. Connect power supply output jack to the test set power input jack.

f. Turn power supply, test set, and voltmeter on. Allow several minutes for warm-up.

g. Observe that voltmeter reads 48 ± 0.1 Vdc. If necessary, adjust power supply potentiometer R7 to obtain an indication of 48 ± 0.1 Vdc.

h. Shut off the power supply, the test set, and the voltmeter.

i. Disconnect voltmeter, power source and test set.

j. Replace power supply in the test set cover.

1.17 ELECTRONIC PARTS LIST.

1.18 Table 1—3 lists the electronic parts of the Model TTS 26BXPS power supply. Table 1—4 lists the electronic parts of the printed circuit board. Figure 1—1 shows the power supply component locations. Figure 1—2 shows the printed circuit board component locations.

1.19 SCHEMATIC DIAGRAM.

1.20 Figure 1—3 is the schematic diagram of the Model TTS 26BXPS power supply.

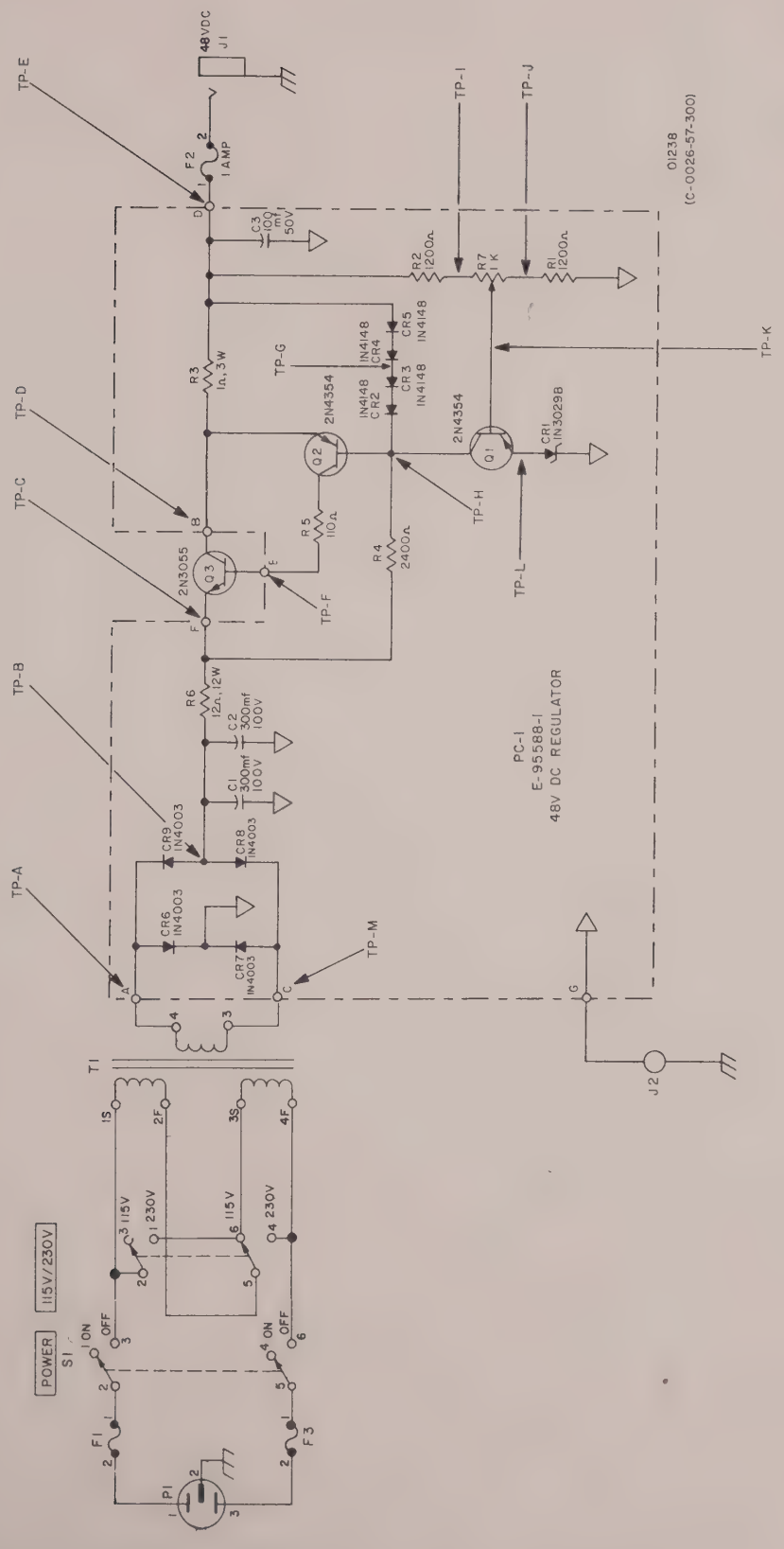
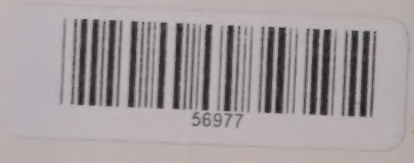


Figure 1—3. Model TTS 26BXPS Power Supply, Schematic Diagram.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